# A

Alpha, risk of rejecting the null hypothesis erroneously
A          Analyze
A/P        Accounts payable
A/R        Accounts receivable
ADU        Average daily units
AFR        Average failure rate
ANOM       Analysis of means
ANOVA      Analysis of variance
AQL        Acceptable quality level
ARL        Average run length
AV         Appraiser variation
AVG        Average
AWU        Average weekly units

# B

Beta, risk of not rejecting the null hypothesis erroneously
$B_i$       Batch size for Part i
BB          Black Belt
BNVA        Business non-value add
BOH         Balance on-hand
BOM         Bill of material
BOO         Balance on-order

# C

C           Control and customer
c chart     Control chart for nonconformities
C&E         Cause and effect (diagram)
CAPEX       Capital expenditures
CBR         Critical to business requirement
CCP         Critical Control Point. A step, point or procedure at which control can be applied and a food safety hazard can be prevented, eliminated or reduced to an acceptable level. Part of HACCP (Hazard Analysis Critical Control Points) program.
CCR         Critical to customer requirement
CTQ         Critical to quality
CDF         Cumulative distribution function
CEO         Chief executive officer
CFM         Continuous flow manufacturing
CFO         Chief financial officer
CI          Continuous improvement or confidence interval
CL          Center line in an SIPOC chart
COGS        Cost of goods sold
COPQ        Cost of poor quality
COQ         Cost of quality
COS         Cost of sales
$C_p$       Capability index which shows the process capability potential but does not

consider how centered the process is.

$C_{pk}$   Capability index used to compare the natural tolerance of a process within the specification limits.  Cpk has a value equal to Cp if the process is centered on the nominal; if Cpk is negative, the process mean is outside of the specification limits; if Cpk is between 0 and 1 then the natural tolerances of the process falls outside the spec limits.

CRP   Capacity resource planning
CTC   Critical to cost
CTD   Critical to delivery
CTI   Cycle time interval
$CTI_i$   Cycle time interval for part i
CTB   Critical to business
CTP   Critical to process
CTQ   Critical to quality
CUSUM   Control chart which plots the cumulative deviation of each subgroup's average from the nominal value.
CV   Coefficient of variation
CVA   Customer value added

# D

D chart   Demerit chart
DC   Distribution center
DF   Degrees of freedom
DFM   Design for manufacturability
DL   Direct labor
$DMD_i$   Demand for part i
DFSS   Design for six sigma
DMAIC   Define, measure, analyze, improve, control
DMEDI   Define, measure, explore, develop and implement
DOE   Design of experiments
DOF   Degrees of freedom
DPM   Defects per million
DPMO   Defects per million opportunities
DPO   Defects per opportunity
DPU   Defects per unit
DSO   Days sales outstanding

# E

ECN   Engineering change order
EDI   Electronic data interchange
EH&S   Environment, health and safety
EMEA   Error modes and effects analysis
EOQ   Economic order quantity
ERP   Enterprise requirements planning
EV   Equipment variation
EVA   Economic value add
EVOP   Evolutionary operations

EXITS     Process throughput (units/time)

# F

FG        Finished goods
FMEA      Failure mode and effects analysis
FPO       Firm planned order

# G

G         Number of subgroups
Gage R&R  Gage repeatability and reproducibility
GAP       General accounting principles
GB        Green Belt
GPS       Group problem solving

# H

$H_a$     Alternative hypothesis
$H_o$     Null hypothesis

# I

IDL       Indirect labor
IS        Information systems
IT        Information technology

# J

JIT       Just in time

# K

KCA       Knowledge centered activity
KPIV      Key process input variables
KPOV      Key process output variables
KSF       Key success factors

# L

LCL       Lower control limit (in SPC)
LSL       Lower specification limit
LSS       Lean Six Sigma
LT        Lead time

# M

          Mu, population true mean
$\hat{\mu}$  Estimate of population mean
MIS       Management information systems
MPS       Master production schedule
MRO       Maintenance and repair
MRP       Material requirements planning
MRPII     Material resource planning
$MS$      Mean square
MSA       Measurement systems analysis
MTBF      Mean time between failure
MTBF      Mean time between failures

| MTTF | Mean time to fail |
|---|---|

# N

| n | Sample size |
|---|---|
| NGT | Nominal group technique |
| NOPAT | Net operating profit after tax |
| *np* (chart) | SPC chart of number of nonconforming items |
| NVA | Non-value add |

# O

| OE | Owners earnings |
|---|---|
| OEE | Overall equipment effectiveness |
| OF | Order frequency |
| OP | Operating profit |
| OSHA | Occupation Safety and Health Administration |
| OTD | On-time delivery |

# P

| P | Probability |
|---|---|
| p (chart) | Control chart of the proportion of defective units (or fraction defective) in a subgroup.  Based on the binomial distribution |
| P Value | The probability of making a Type I error. |
| P/T | Precision to tolerance ratio |
| PAT | Profit after tax |
| PC | Production control |
| PCE | Process cycle efficiency |
| PLT | Process lead time |
| PD | Product development |
| PDF | Probability density function |
| $P_i$ | Processing time per unit for part i |
| PIP | Project in process |
| POU | Point of use |
| $P_p$ | Performance index (AIAG l995b) (calculated using "long-term" standard deviation) |
| PP&E | Plant property and equipment |
| $P_{pk}$ | Performance index (AIAG 1995b) (calculated using "long-term" standard deviation) |
| PPM | Parts per million (defect rate) |
| PPV | Purchase price variance |
| $PR_i$ | Production Rate for Part i |

# Q

| QC | Quality control |
|---|---|
| QFD | Quality function deployment |

# R

| R | Range (in SPC) |
|---|---|
| r | Number of failures, correlation coefficient |
| R&D | Research and development |

| | |
|---|---|
| r(t) | System failure rate at time (t) for the NHPP model |
| $R^2$ | Coefficient of determination |
| $R_b$ | Rate of the bottleneck |
| RACI | Responsible, accountable, consultedm informed |
| RCCP | Rough cut capacity planning |
| RM | Raw material |
| ROC | Return on capital |
| RONA | Return on net assets |
| RPS | Replenishment pull system |
| RSM | Response surface methodology |
| RTY | Rolled throughput yield |

# S

| | |
|---|---|
| s | Standard deviation of a sample |
| | Sigma, population standard deviation |
| $\hat{\sigma}$ | Estimate for population standard deviation |
| $\hat{s}$ | Estimate for standard deviation of a sample |
| S Chart | Sample standard deviation chart |
| S&OP | Sales and operations planning |
| SG&A | Sales, general and administrative |
| SKU | Stock keeping unit |
| SL | Service level |
| SLOB | Slow and obsolete inventory |
| SMED | Single minute exchange of dies |
| SOP | Standard operating procedure |
| SPC | Statistical process control |
| SS | Safety stock |
| SS | Sum of squares |
| $SU_i$ | Setup time for part i |

# T

| | |
|---|---|
| TPM | Total productive maintenance, total preventive maintenance |
| TPS | Toyota production system |

# U

| | |
|---|---|
| u (chart) | SPC chart of number of nonconformities per unit |
| UCL | Upper control limit (SPC) |
| USL | Upper specification limit |

# V

| | |
|---|---|
| VA | Value add |
| VAMS | Value added manufacturing systems |
| VOB | Voice of the business |
| VOC | Voice of the customer |
| VOP | Voice of the process |

# W

| | |
|---|---|
| WACC | Weighted average cost of capital |

| | |
|---|---|
| WCT | Workstation turnover time |
| WIP | Work in process |

# X

| | |
|---|---|
| $\bar{x}$ | Mean of a variable x |
| $\tilde{x}$ | Median of variable x |
| $\bar{x}$ chart | SPC chart of means (i.e., x-bar chart) |
| Xmr (chart) | SPC chart of individual and moving range measurements |

# Y

| | |
|---|---|
| $Y_i$ | Yield for part i |